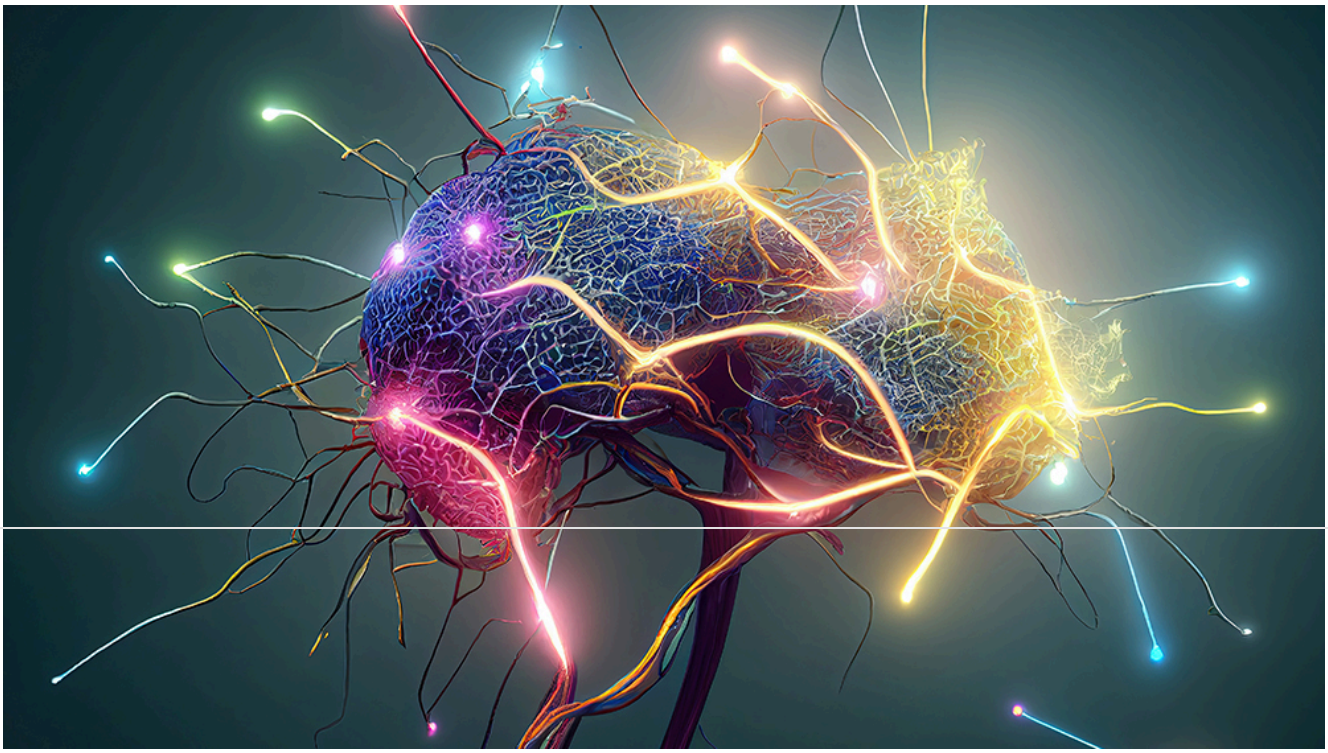
The precursor to NAD+ reverses brain damage caused by phthalates

11/11/2025 // Lance D Johnson // **670** Views

Tags: blood brain barrier, brain damage, brain function, brain health, brain inflammation, cognitive health, DBP, environmental toxins, goodhealth, goodmedicine, goodscience, health science, holistic health, NAD, natural cures, natural health, natural medicine, Naturopathy, neuroprotection, neurotoxicity, NMN, nutrients, phthalates, plasticizers, remedies, research, SIRT1, supplements



Di-n-butyl phthalate (DBP), a common plasticizer found in food packaging and medical tubing, leaches into your body and systematically dismantles the protective barrier around your brain. While the chemical industry continues to profit from these ubiquitous compounds, a beacon of hope emerges from nature's own pharmacy.

Pioneering research reveals that a simple nucleotide, **nicotinamide mononucleotide (NMN), can not only repair the damage but restore cognitive function,** offering a powerful strategy to combat the insidious effects of modern environmental poisoning.

Key points:

- Di-n-butyl phthalate (DBP), a widespread plasticizer, actively damages the blood-brain barrier, the brain's critical defense system.
- This breach leads to neuroinflammation, neuronal damage, and significant cognitive deficits.
- The mechanism of damage involves DBP depleting vital NAD+ levels, which in turn suppresses the protective Sirt1/FOXO1a pathway in the brain.
- Nicotinamide mononucleotide (NMN), a precursor to NAD+, effectively reverses this damage by replenishing NAD+ and reactivating the body's innate defense systems.
- NMN supplementation restored blood-brain barrier integrity, reduced inflammation, and rescued learning and memory in animal studies, positioning it as a potent therapeutic

intervention.

What is NAD+?

Nicotinamide adenine dinucleotide (NAD+) is an indispensable coenzyme vital for cellular energy production, acting as a spark to metabolize glucose and fats. Beyond this primary role, NAD+ is crucial for overall cellular health. It possesses antioxidant capabilities, reducing oxidative stress to prevent chronic diseases. Furthermore, new research highlights its role in fueling sirtuins, proteins that protect tissues. This activity supports critical processes like DNA repair and is linked to increased lifespan. Ultimately, NAD+ is a coenzyme you can't live without, essential for efficient daily functioning and long-term cellular maintenance.

The chemical siege on your neuro-defenses

The blood-brain barrier (BBB) is the brain's vigilant gatekeeper, a sophisticated cellular structure that meticulously controls what enters the brain from the bloodstream. It is what protects your most vital organ from toxins, pathogens, and inflammation, ensuring a stable environment for thought, memory, and consciousness. New research published in *Ecotoxicology and Environmental Safety* delivers a damning indictment against DBP, showing it directly compromises this crucial barrier.

Scientists exposed mice to environmentally relevant doses of DBP and observed a frightening cascade of events. The integrity of the BBB was shattered, evidenced by the leakage of dyes that should never cross into brain tissue. This physical breach was accompanied by a storm of neuroinflammation, with levels of pro-inflammatory cytokines like IL-1?, IL-6, and TNF-? skyrocketing. Under the microscope, the evidence was stark; neurons showed damage and condensation, while the expression of "tight junction" proteins (ZO-1 and Occludin), which act as the mortar between the barrier's cells, plummeted. The brain, left undefended, began to falter.

Unlocking the molecular crime scene

To understand how DBP orchestrates this attack, researchers delved into the molecular workings of brain cells. The crime scene analysis pointed to a robbery of a fundamental cellular resource: nicotinamide adenine dinucleotide (NAD+). **NAD+ is a crucial coenzyme that fuels energy metabolism, regulates redox balance, and controls cellular defense pathways.** The study found that DBP exposure dramatically depleted NAD+ levels in the brain.

This theft of NAD+ has dire consequences. It silences a key guardian protein called Sirtuin 1 (Sirt1), an NAD+ dependent enzyme often called a "longevity protein" for its role in cellular repair and stress resistance. With Sirt1 deactivated, its partner, the transcription factor

FOXO1a, cannot function properly. The Sirt1/FOXO1a pathway is essential for maintaining mitochondrial health, reducing oxidative stress, and preserving the integrity of the blood-brain barrier. By dismantling this pathway, DBP disables the brain's primary maintenance and defense crew, leaving it vulnerable to collapse. Transcriptomic analysis confirmed that DBP exposure systematically dysregulated mitochondrial function and shut down this critical protective signaling.

The nicotinamide mononucleotide rescue mission

The most compelling part of this research is the discovery of a powerful countermeasure. Nicotinamide mononucleotide (NMN) is a direct precursor to NAD+. Think of NMN as the raw material the body desperately needs to rebuild its depleted NAD+ supplies. When the DBP-exposed mice were treated with NMN, the results were profound.

NMN supplementation successfully replenished brain NAD+ levels. This, in turn, re-ignited the Sirt1/FOXO1a pathway, restoring its protective vigil. The data showed a dramatic restoration of the tight junction proteins ZO-1 and Occludin, effectively sealing the breached blood-brain barrier. The inflammatory fire in the brain was dampened, and the neuronal damage was mitigated. Crucially, the researchers confirmed that this entire rescue operation was dependent on Sirt1 by using a specific inhibitor, EX-527, which completely abolished NMN's beneficial effects.

The ultimate test was cognitive function. In behavioral tests, mice exposed to DBP showed significant memory and learning deficits. However, those treated with NMN performed remarkably well, navigating mazes with an ease that rivaled healthy mice. Their anxiety-related behaviors decreased, and their overall brain function was restored. NMN didn't just patch a leak; it restored the brain's ability to think and remember.

This research illuminates a dangerous and widespread threat while providing a scientifically-backed solution. Phthalates like DBP are not inert materials; they are biologically active toxins that accumulate in our bodies. The study authors state, "NMN counteracts these effects, suggesting its potential as a therapeutic agent against environmental neurotoxins."

Sources include:

ScienceDirect.com

NaturalNews.com

Enoch, Brighteon.ai

ASK BRIGHTU.AI

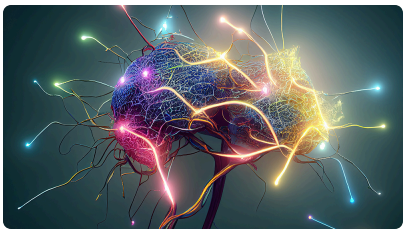
Ask our Brightu AI engine anything about this article or its topics Submit

Powered by Brightu.AI. Check out our prompting guide and video tutorials today.

RELATED TOPICS

BLOOD BRAIN BARRIER | BRAIN DAMAGE | BRAIN FUNCTION | BRAIN HEALTH | BRAIN INFLAMMATION | COGNITIVE HEALTH | DBP | ENVIRONMENTAL TOXINS | GOODHEALTH | GOODMEDICINE | GOODSCIENCE | HEALTH SCIENCE | HOLISTIC HEALTH | NAD | NATURAL CURES | NATURAL HEALTH | NATURAL MEDICINE | NATUROPATHY | NEUROPROTECTION | NEUROTOXICITY | NMN | NUTRIENTS | PHTHALATES | PLASTICIZERS | REMEDIES | RESEARCH | SIRT1 | SUPPLEMENTS

LATEST NEWS



11/11/2025 / By Lance D Johnson

The precursor to NAD+ reverses brain damage caused by phthalates

11/11/2025 / By Willow Tohi

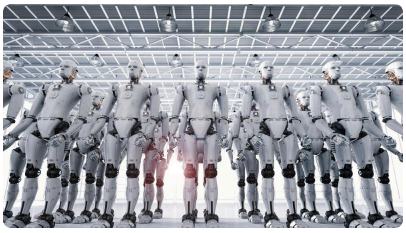
The kitchen mistake that's spreading disease: Why washing raw chicken is a deadly gamble

11/11/2025 / By Ramon Tomey

Trump EXEMPTS Hungary from U.S. sanctions on Russian energy for one year

11/11/2025 / By Ava Grace

Groundbreaking social media ban for under-15s proposed in Denmark



11/11/2025 / By Kevin Hughes

China's XPeng unveils "Iron" humanoid robot: A leap toward AI workforce revolution or a step toward dystopia?

11/11/2025 / By Patrick Lewis

Danish study sparks media firestorm over claims that vaccine side effects may be "all in the mind"

RELATED NEWS

10/16/2025 / By Evangelyn Rodriguez

Common household chemicals linked to brain damage in children, study finds

10/10/2025 / By Willow Tohi

The fluoride deception: How industry manipulated science to push a toxic agenda

10/10/2025 / By S.D. Wells

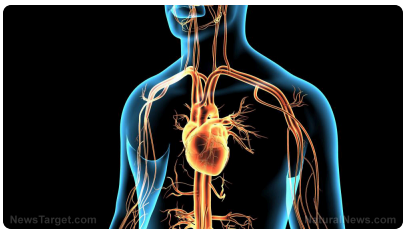
ALUMINUM in VACCINES helps the MERCURY cross the Blood-Brain Barrier and inflict chronic brain damage

09/23/2025 / By Ava Grace

How chronic sleep loss accelerates timeline of cognitive decline

09/11/2025 / By S.D. Wells

TOXIC ARTIFICIAL SWEETENERS 101: They're everywhere so avoid them like the plague



08/20/2025 / By Lance D Johnson

American Heart Association admits that cardiovascular inflammation is linked to dementia and cognitive decline

0 COMMENTS

Please sign in with your Brighteon account to leave comments

Not a user, Create your FREE account today.
Learn more about our new comment system.

Sign In Sign Up

TAKE ACTION:

Support Natural News by linking to this article from your website.

Permalink to this article:

https://www.naturalnews.com/2025-11-11-precursor-to-nad-reverses-brain-damage-phthalates.html Copy

Embed article link:

<a href="https://www.naturalnews.com/2025-11-11-precursor-to-nad-reverses-brain-damage-phthalates.html">The Copy

Reprinting this article:

Non-commercial use is permitted with credit to NaturalNews.com (including a clickable link).
Please contact us for more information.

FREE EMAIL ALERTS

Get independent news alerts on natural cures, food lab tests, cannabis medicine, science, robotics, drones, privacy and more.

Enter Your Email Address

We respect your privacy

This site is part of the Natural News Network © 2022 All Rights Reserved. Privacy | Terms All content posted on this site is commentary or opinion and is protected under Free Speech. Truth Publishing International, LTD. is not responsible for content written by contributing authors. The information on this site is provided for educational and entertainment purposes only. It is not intended as a substitute for professional advice of any kind. Truth Publishing assumes no responsibility for the use or misuse of this material. Your use of this website indicates your agreement to these terms and those published here. All trademarks, registered trademarks and servicemarks mentioned on this site are the property of their respective owners.